



Oregon

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Modified

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Radon Mitigation Standards – Effective April 1, 2011

Passage of Senate Bill 1025 required that the Division adopt radon mitigation standards for public buildings, Group R-2, and R-3 occupancies constructed in *Baker, Clackamas, Hood River, Multnomah, Polk, Washington and Yamhill Counties*. The effective date for implementation of radon mitigation standards for Group R-2 and R-3 occupancies is April 1, 2011. Radon mitigation is not required in public buildings until April 1, 2013.

With input from stakeholders, the Division adopted an amended version of Appendix F, “Radon control methods”, effective April 1, 2011 for Group R-3 structures and OSSC, Section 1812 for Group R-2 structures regulated under Appendix N. The approved standards are available on our website, formatted for insertion into your codebook, at the following links:

http://www.bcd.oregon.gov/programs/residential/2008ORSC/2008_ORSC_Radon_Memo_and_Appendix-F_eff-040111.pdf

http://www.bcd.oregon.gov/programs/structural/2010ossc_amendments/2010_OSSC_Radon_Section_1812_eff-040111.pdf

Without an effective way to test a site prior to construction, Appendix F provides a reasonable standard for radon mitigation applicable to all newly constructed R-3 occupancies, throughout the seven counties – whether radon is present or not.

There are many radon mitigation strategies that exceed the requirements adopted in the building code. The discussion in this document is intended to help Building Officials understand the adopted code requirements of Appendix F applicable to Group R-3 structures located in the specified counties.

The following options are applicable when constructing buildings **with crawlspace foundations**:

- a) A mechanical crawlspace ventilation system;
- b) A crawl space mitigation system; or
- c) A passive sub-membrane depressurization system.

Mechanical crawlspace ventilation systems:

Radon mitigation can be satisfied by mechanically ventilating the crawlspace in accordance with Section R408.2, exception 3.

Crawl space mitigation system:

Provide crawlspace foundation ventilation with a minimum of 1 sq. ft. of opening area per 150 sq. ft of underfloor area. Conduct a blower door test to ensure building tightness

meets 5.0 air changes per hour or less and provide a building ventilation system in accordance with Chapter 11 or ASHRAE 62.2.

Passive sub-membrane depressurization system:

Provide standard foundation ventilation per the ORSC, Section R408.1. Install a continuous layer of 6-mil polyethylene, lapped 12 inches at joints. Polyethylene is required to extend to all foundation walls enclosing the crawlspace. A “Tee” fitting or other approved connection shall be installed below the polyethylene and connected to a 3 or 4 inch diameter vertical vent pipe. The vent pipe needs to extend to a termination point 12 inches above the roof in a location that is a minimum of 10 feet from windows or other openings into the conditioned space less than 2 feet below the exhaust point.

The following provisions are applicable to **basement and slab-on-grade** construction:

Passive subslab depressurization system:

A “T” fitting located beneath the polyethylene film needs to be provided and connected to a 3-inch vertical vent pipe prior to concrete casting. The vent pipe is required to be continuous to a termination point at least 12 inches above the roof of the building and at least 10 feet away from windows or other openings into the conditioned space.

In buildings where interior footings separate the sub-slab aggregate or other gas-permeable material, each area needs to include an individual vent pipe. The individual vent pipes can be connected into a single exhaust stack prior to termination above the roof or be terminated individually. All concrete control joints, isolation joints and construction joints need to be sealed with caulk or other sealant.

*Additional requirement applicable **ONLY** to concrete slabs or other floor systems that directly contact the ground:*

- Subfloor preparation requires installation of a layer of gas-permeable material (can be crushed rock, sand or other methods as identified in Appendix F).

Additional requirements applicable to all methods:

- Under floor area shall be covered with a 6 mil polyethylene over the gas-permeable layer of material, lapped 12 inches and fitted tight around penetrating items.
- Floor openings around bathtubs, showers, water closets, pipes or other objects providing entry points shall be sealed.
- Condensate drains shall be trapped or routed through non-perforated pipe to daylight.
- Air-handling units located in crawl spaces shall be sealed to prevent air from being drawn into unit.
- Ductwork passing through or beneath slabs shall be sealed per M1601.4.
- Ductwork located in crawlspaces or under slabs shall be performance tested.
- Crawl space access doors located in assemblies separating conditioned space from the crawl space shall be gasketed.

The information provided in this communication is intended to serve as a tool for developing a basic understanding of the requirements of Appendix F “Radon Mitigation Standards”.

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